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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,514	08/29/2007	Jianfei He	30952/42283	1676

4743 7590 04/16/2010

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EXAMINER	
GHAFOERKHAN, FAIYAZKHAN	
ART UNIT	PAPER NUMBER
2476	

MAIL DATE	DELIVERY MODE
04/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,514	HE ET AL.	
	Examiner	Art Unit	
	FAIYAZKHAN GHAFOERKHAN	2476	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9 and 11* is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☒ Claim(s) *5-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 8, 10, and 12-17 stand canceled. Claims 1-7, 9, and 11 were previously presented. Claims 1-4 have been examined and stand rejected. Claims 5-7 are objected to. Claims 9 and 11 are allowed.

Claim Objections

1. Claims 3 and 5-7 are objected to because of the following informalities: the claim limitations are bulleted/numbered within the body of the claim using alphanumeric characters. The claim limitations should read as a complete paragraph without any bullets or numbering. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,859,842 B1 to Nakamichi et al. (hereinafter "Nakamichi") and US 2004/0133368 A1 to Johansson et al. (hereinafter "Johansson").

As per claim 1, Nakamichi teaches a method for data forwarding in label switching networks **(Abstract of Nakamichi)**, comprising the following steps: at a source node, distributing and mapping all the data packets forming an original data flow to be forwarded to multiple Label Switching Paths (LSPs) for forwarding **(Fig. 15, of Nakamichi shows the incoming packets to the Label Switch Router (LSR) and the packets are mapped to LSPs for transport to their destination), but is silent on** inserting a detection message into the original data flow to be forwarded according to a set period, and when information of an invalid LSP is received from a destination node, stop distributing the data packets to the invalid LSP; and at the destination node, receiving the detection message from each of the LSPs according to the set period, when the detection message is found lost, deciding that the LSP becomes invalid, sending the information of the invalid LSP to the source node, stopping receiving the data packets from the invalid LSP, and **but teaches** merging the data packets received from all the LSPs into the same data flow as the original data flow forwarded **(Col. 11, lines 51-56, of Nakamichi teaches that the packet traffic is received at the egress node via different paths and the packets are reassembled into the original message)**.

However, Johansson teaches inserting a detection message into the original data flow to be forwarded according to a set period **(Fig. 4, and Paragraph [0052], of Johansson teaches**

that Connectivity Verification (CV) messages are sent on the LSP at a nominal frequency (period)), and when information of an invalid LSP is received from a destination node, stop distributing the data packets to the invalid LSP **(Fig. 4, and Paragraph [0014] and [0052], of Johansson teaches that once the fault has been detected a connection fault notification is sent in the network. Paragraph [0014] and [0052], of Johansson teaches that a switchover is performed from one LSP to another. This means stopping traffic though the LSP with the error and transferring though another)**; and at the destination node, receiving the detection message from each of the LSPs according to the set period **(Paragraph [0052], of Johansson teaches that the CV flow is received/terminated at the Sink LSR. The CV packets are received and checked to see if there are any missing or lost according to it transmission)**, when the detection message is found lost **(Fig. 4, of Johansson teaches that the Sink detects the CV packets, check to see if any are missing, and if the missing packets exceed a certain threshold)**, deciding that the LSP becomes invalid **(Fig. 4, of Johansson at #412, teaches that a fault is detected at the Sink)**, sending the information of the invalid LSP to the source node **(Fig. 4, of Johansson at #414, teaches that a connection fault notification is sent)**, stopping receiving the data packets from the invalid LSP **(Paragraph [0024], [0014], and [0052], of Johansson teaches that a switchover is performed from one LSP to another. This means stopping traffic though the LSP with the error and transferring though another)**.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Johansson within Nakamichi because it would

allow for a fault detection and switch-over functionality for real time applications (Paragraph [0008-0009], of Johansson).

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamichi and Johansson as applied to claim 1 above, and further in view of US 6,788,686 B1 to Khotimsky et al. (hereinafter "Khotimsky").

As per claim 2, the combination of Nakamichi and Johansson teaches the method according to claim 1, **but are silent on** further comprising: at the source node, adding a sequence number to each data packet forming the original data flow to be forwarded according to the forwarding order before mapping the data packets to the LSPs, wherein merging the data packets comprises, merging the data packets received from the LSPs in the order of the sequence numbers, removing the sequence numbers of the merged data packets, and obtaining the same data flow as the original one to be forwarded.

However, Khotimsky teaches at the source node, adding a sequence number to each data packet forming the original data flow to be forwarded according to the forwarding order before mapping the data packets to the LSPs **(Col. 6, lines 16-19, of Khotimsky teaches that packets are broken up into numbered segments and transmitted across different links),** wherein merging the data packets comprises, merging the data packets received from the LSPs in the order of the sequence numbers, removing the sequence numbers of the merged data packets, and obtaining the same data flow as the original one to be forwarded **(Col. 6, lines 16-19, of Khotimsky teaches that the receiver uses the sequence numbers to restore the segment order)**.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Nakamichi and Johansson with the teachings of Khotimsky to provide for correct packet re-assembly at the receiver node as suggested by Khotimsky (Col. 6, lines 16-19).

As per claim 4, the combination of Nakamichi, Johansson, and Khotimsky teaches the method according to claim 2, wherein adding the sequence number comprises: the sequence number to be added to the data packet being increased according to the transmitting order **(Col. 6, lines 4-5, of Khotimsky teaches that a time stamp can be a sequence number. Time stamps would change/increase with each packet that is transmitted)**.

The examiner supplies the same rational to combine the teachings of Nakamichi and Johansson with the teachings of Khotimsky as in claim 2.

6. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamichi, Johansson, and Khotimsky as applied to claims 1-2, and 4 above, and further in view of US 2002/0136230 A1 to Dell et al. (hereinafter "Dell").

As per claim 3, the combination of Nakamichi, Johansson, and Khotimsky teaches the method according to claim 2, **but is silent on** wherein mapping the data packets to the LSPs for forwarding comprises:

a1 determining the current data packet to be forwarded according to a First In First Out FIFO) principle, and selecting one LSP through a Round Robin mode of all the valid LSPs;

a2 deciding whether it is allowed to send a data packet via a buffer of the selected LSP, if yes, proceeding to a3; if not, proceeding to a4;

a3 mapping the data packet to the LSP for forwarding, and proceeding to Step a1;

a4 selecting the next LSP by the Round Robin mode, and proceeding to Step a2.

However, Dell teaches wherein mapping the data packets to the LSPs for forwarding comprises:

a1 determining the current data packet to be forwarded according to a First In First Out (FIFO) principle **(Paragraph [0026], of Dell teaches the FIFO principle of selecting transmission data)**, and selecting one LSP through a Round Robin mode of all the valid LSPs **(Paragraph [0008], of Dell teaches using round-robin scheduling data to be transmitted via an output port)**;

a2 deciding whether it is allowed to send a data packet via a buffer of the selected LSP **(Paragraph [0008], of Dell teaches that the scheduler, using round-robin, determines when the queue is eligible for service, meaning ready to transmit data via the queue of an output port)**, if yes, proceeding to a3; if not, proceeding to a4;

a3 mapping the data packet to the LSP for forwarding **(Fig. 15, of Nakamichi shows the incoming packets being mapped to LSPs)**, and proceeding to Step a1;

a4 selecting the next LSP by the Round Robin mode **(Paragraph [0008], of Dell teaches that the scheduler, using round-robin, determines when a queue is eligible for service, meaning ready to transmit data via the queue of an output port)**, and proceeding to Step a2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Nakamichi, Johansson, and Khotimsky with the teachings of Dell to help achieve a high Quality of Service as suggested by Dell (Paragraph [0012]).

Allowable Subject Matter

7. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 9 and 11 are allowed.

Response to Arguments

9. Applicant's arguments filed 01/25/2010 have been fully considered but they are not persuasive.

In response to Applicant's arguments that the recited references do not teach the limitations of independent claim 1, in particular stopping traffic through an LSP with errors, the Examiner respectfully disagrees. Paragraphs [0014], [0024], [0052], of Johansson teach where an error or fault is detected in a path based on a certain amount of connectivity verification (CV) packets not being received or incorrect. When a threshold has been met a switch-over is made from the error/fault path to a protected path. Paragraph [0044], of Johansson further teaches and clarifies that the traffic is transmitted on either the working or the protection path. The protection path can be used to carry "extra traffic" when not used to carry the working traffic. Therefore if traffic is flowing on either the working path or the protected path when there is an error/fault, traffic through one path will be stopped.

In view of the Examiner's response to Applicant's arguments concerning claim 1 above, the arguments presented by the Applicant concerning claims 2-4 are moot as the arguments merely state that claims 2-4 are allowable due to their dependency from claim 1.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FAIYAZKHAN GHAFOERKHAN whose telephone number is (571) 270-7161. The examiner can normally be reached on Flexible.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. G./
Examiner, Art Unit 2476

/Ayaz R. Sheikh/
Supervisory Patent Examiner, Art Unit 2476